

WHAT IS CLAIMED IS:

1. A process for producing dimethyl ether comprising dehydrating methanol in vapor phase in the presence of an activated alumina catalyst having an average pore radius of at least 2.5 nm and at most 8.0 nm
5 and having a sodium oxide content of at most 0.07 % by weight.
2. The process according to Claim 1, wherein the activated alumina catalyst is a γ -alumina catalyst.
3. The process according to Claim 1, wherein the
10 sodium oxide content in the activated alumina catalyst is at most 0.05 % by weight.
4. The process according to Claim 1, wherein neither water nor steam is added to the dehydration reaction system.
- 15 5. The process according to Claim 1, wherein no active component other than the activated alumina is added to the activated alumina catalyst.
6. The process according to Claim 1, wherein the dehydration is conducted at a pressure of at least 0.0
20 MPa-G and at most 3.0 MPa-G.
7. The process according to Claim 1, wherein the dehydration is conducted at a pressure of at least 1.0 MPa-G and at most 2.5 MPa-G.